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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,593	10/30/2003	Hiroyuki Seki	FUJO 20.695 (100794-00490)	1897
26304 7590 03/30/2007 KATTEN MUCHIN ROSENMAN LLP 575 MADISON AVENUE NEW YORK, NY 10022-2585			EXAMINER CHEN, JUNPENG	
			ART UNIT 2618	PAPER NUMBER

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/30/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/699,593

Applicant(s)

SEKI ET AL.

Examiner

Junpeng Chen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 01/27/2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Information Disclosure Statement*

1. The information disclosure statement submitted on 01/27/2004 has been considered by the Examiner and made of record in the application file.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. **Claims 1-6 and 8-13** are rejected under 35 U.S.C. 102(e) as being anticipated by **Greenstein et al. (U.S. Patent 6,131,016)**.

Consider **claim 1**, Greenstein discloses a transmitting diversity system with a base station transmitting signals from a plurality of antennas and performing diversity transmission according to feedback data transmitted from a mobile node receiving the signals (read as a system provides transmit diversity with feedback to enhance the reception of communication signals at a wireless communication terminal, abstract), comprising:

a signal condition detection unit detecting the condition of a signal transmitted from each of the plurality of antennas (read as an inherently existing detector that detects the path loss characteristics as fading, Figure 4, lines 45-66 of column 5, lines 8-9 and lines 28-30 of column 6);

an antenna selection unit selecting an antenna for which a control weight is calculated, from the plurality of antennas (read as the processor 230 would operate on the fed back information to select one transmission processing circuit, Figure 2A, lines 53-66 of column 4); and

a control weight unit calculating a control weight applied to the selected antenna and applying the control weight to signals transmitted from the selected antenna (read as processing circuit 280 measures both relative amplitude and relative phase of successive pilot tones and sends that information back on the uplink to the base station, the processing circuitry within the base station then can set both  $w_1$  and  $w_2$  in both amplitude and phase so as to maximize the downlink received power for given transmit power, Figures 2A and 2B, lines 42-44 of column 4 and lines 25-33 of column 5).

Consider **claim 2, as applied to claim 1 above**, Greenstein discloses wherein said control weight unit fixes the control weight of an unselected antenna (read as zeroing one of the weighting circuits 2002a or 2003a based on the feedback, Figure 2A, lines 25-33 of column 5).

Consider **claim 3, as applied to claim 1 above**, Greenstein discloses a switch unit routing input signals to each of the plurality of antennas and disconnecting the antenna, wherein said antenna selection unit turns off a corresponding switch so that no

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signals can be transmitted from an unselected antenna (read as by employing a selection switch, the processor 230 selects one switch and deselect the other switch in response to the feedback signal from the receiver terminal, Figure 2A, line 43 of column 4 to line 7 of column 5).

Consider **claim 4, as applied to claim 1 above**, Greenstein discloses wherein said signal condition detection unit measures propagation loss, fading frequency or correlation coefficient between antennas of an incoming signal (read as an inherently existing detector that detects the path loss characteristics as fading, Figure 4, lines 45-66 of column 5, lines 8-9 and lines 28-30 of column 6);

Consider **claim 5, as applied to claim 1 above**, Greenstein discloses wherein said signal condition detection unit is provided for the mobile node (read as an inherently existing detector that detects the path loss characteristics as fading and the detection (analysis) can be performed in the terminal (receiving terminal), Figure 4, line 65 of column 5).

Consider **claim 6, as applied to claim 1 above**, Greenstein discloses wherein said signal condition detection unit is provided for the base station (read as an inherently existing detector that detects the path loss characteristics as fading and the detection (analysis) can be performed in the transmission processing circuitry (base station), Figure 4, lines 45-64 and 66 of column 5).

Consider **claim 8**, Greenstein discloses a transmitting diversity system with a base station transmitting signals from a plurality of antennas and performing diversity transmission according to feedback data transmitted from a mobile node receiving the

signals (read as a system provides transmit diversity with feedback to enhance the reception of communication signals at a wireless communication terminal, abstract), comprising:

detecting the condition of a signal transmitted from each of the plurality of antennas (read as an inherently existing detector that detects the path loss characteristics as fading, Figure 4, lines 45-66 of column 5, lines 8-9 and lines 28-30 of column 6);

selecting an antenna for which a control weight is calculated, from the plurality of antennas (read as the processor 230 would operate on the fed back information to select one transmission processing circuit, Figure 2A, lines 53-66 of column 4); and

calculating a control weight applied to the selected antenna and applying the control weight to signals transmitted from the selected antenna (read as processing circuit 280 measures both relative amplitude and relative phase of successive pilot tones and sends that information back on the uplink to the base station, the processing circuitry within the base station then can set both  $w_1$  and  $w_2$  in both amplitude and phase so as to maximize the downlink received power for given transmit power, Figures 2A and 2B, lines 42-44 of column 4 and lines 25-33 of column 5).

Consider **claim 9, as applied to claim 8 above**, Greenstein discloses wherein in the control weight step, the control weight of an unselected antenna is fixed (read as zeroing one of the weighting circuits 2002a or 2003a based on the feedback, Figure 2A, lines 25-33 of column 5).

Consider **claim 10, as applied to claim 8 above**, Greenstein discloses routing input signals to each of the plurality of antennas and disconnecting the antenna (switch step), wherein in the antenna selection step, a corresponding switch is turned off so that no signals can be transmitted from an unselected antenna (read as by employing a selection switch, the processor 230 selects one switch and deselect the other switch in response to the feedback signal from the receiver terminal, Figure 2A, line 43 of column 4 to line 7 of column 5).

Consider **claim 11, as applied to claim 8 above**, Greenstein discloses wherein in the signal condition detection step, propagation loss, fading frequency or correlation coefficient between antennas of an incoming signal is measured (read as an inherently existing detector that detects the path loss characteristics as fading, Figure 4, lines 45-66 of column 5, lines 8-9 and lines 28-30 of column 6);

Consider **claim 12, as applied to claim 8 above**, Greenstein discloses wherein the signal condition detection step is performed in the mobile node (read as an inherently existing detector that detects the path loss characteristics as fading and the detection (analysis) can be performed in the terminal (receiving terminal), Figure 4, line 65 of column 5).

Consider **claim 13, as applied to claim 8 above**, Greenstein discloses wherein the signal condition detection step is performed in the base station (read as an inherently existing detector that detects the path loss characteristics as fading and the detection (analysis) can be performed in the transmission processing circuitry (base station), Figure 4, lines 45-64 and 66 of column 5).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**Claims 7 and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Greenstein et al. (U.S. Patent 6,131,016)**.



Consider **claim 7, as applied to claim 1 above**, Greenstein discloses the processing circuitry within the base station can set both  $w_1$  and  $w_2$  in both amplitude and phase so as to maximize the downlink received power for given transmit power (Figures 2A and 2B, lines 42-44 of column 4 and lines 25-33 of column 5), but fails to specifically disclose wherein the plurality of antennas are provided for a plurality of base stations, and said antenna selection unit also selects a base station to communicate with by selecting an antenna with a controlled weight from the plurality of antennas and making possible a handover process accompanying the travel of each mobile node.

However, the Examiner takes Office Notice that it is well-known that during the process of handover, the involving base stations are communicating with each other through antennas, that the processing circuitry within the base station can set weight ( $w_1$  and  $w_2$ ) to maximize the received power for a given transmit power.

Therefore, it would have been obvious for a person with ordinary skill in the art at the time the invention was made to modify Greenstein to set the weight of the selected antenna that communicate with other base station in order to enhance the operation characteristics of the transmission system.

Consider **claim 14, as applied to claim 8 above**, Greenstein discloses the processing circuitry within the base station can set both  $w_1$  and  $w_2$  in both amplitude and phase so as to maximize the downlink received power for given transmit power (Figures 2A and 2B, lines 42-44 of column 4 and lines 25-33 of column 5), but fails to specifically disclose wherein the plurality of antennas are provided for a plurality of

base stations, and in the antenna selection step, a base station to communicate with is also selected by selecting an antenna with a controlled weight from the plurality of antennas and making possible a handover process accompanying the travel of a mobile node.

However, the Examiner takes Office Notice that it is well-known that during the process of handover, the involving base stations are communicating with each other through antennas, that the processing circuitry within the base station can set weight ( $w_1$  and  $w_2$ ) to maximize the received power for a given transmit power.

Therefore, it would have been obvious for a person with ordinary skill in the art at the time the invention was made to modify Greenstein to set the weight of the selected antenna that communicate with other base station in order to enhance the operation characteristics of the transmission system.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Chuberre; Nicolas et al.	US 6522896 B2	Antenna diversity base station for transmission of unidirectional channels and corresponding method of transmission of a unidirectional channel by a base station
Hayashi; Masaki et al.	US 5598404 A	Transmission diversity for a CDMA/TDD mobile telecommunication system
Hottinen; Ari et al.	US 6754286 B2	Transmit diversity method and system
Miyoshi; Kenichi	US 6980612 B1	Communication terminal apparatus and radio communication method
Takahashi; Hideyuki	US 6226508 B1	Transmission diversity apparatus

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et al.

Wang; Yan Ivan et al. US 6915116 B2

Yoshida; Shousei et al. US 6359864 B1

al.

Yun; Louis C. US 7035661 B1

Yun; Louis C. et al. US 6985466 B1

Transmission diversity

FDD/CDMA transmission/reception system

Power control with signal quality estimation for smart antenna communication systems

Downlink signal processing in CDMA systems utilizing arrays of antennae

8. Any response to this Office Action should be **faxed to (571) 273-8300 or mailed to:**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**Hand-delivered responses** should be brought to

Customer Service Window  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Junpeng Chen whose telephone number is (571) 270-1112. The examiner can normally be reached on Monday - Thursday, 8:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edan Orgad can be reached on 571-272-7884. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Junpeng Chen  
J.C./jc

EDAN ORGAD  
PRIMARY PATENT EXAMINER

*Edan Orgad* 3/28/07